

REMARKS

Claims 4-8, 13, 14, 22, 27, 28, 31-34, and 36-54 are active in the present application.

The Office has restricted this application as follows under 35 U.S.C. §121:

Group I: Claims 4, 6, 7, 22, 27, and 28, drawn to products of formula [II-1];

Group II: Claims 5, 39, 40, and 44-46, drawn to products of formula [II-2];

Group III: Claims 8, 13, 14, 34, and 41-43, drawn to a method of expressing long-term potentiation;

Group IV: Claims 31, 32, 33, 36, 38, 47-51, and 53, drawn to screening methods and products; and

Group V: Claims 37, 52, and 54, drawn to pharmaceutical package.

The Office is requiring the election of a single disclosed species for the elected Group.

Applicants elect of Group II (Claims 5, 39, 40, and 44-46), with traverse. In addition, Applicants elect a compound of formula [II-2] where R^4 = lower alkanoyl, R^7 = phenyl substituted with halogen, $X = CH$, $J = -NH-$, and $Q = -CO-$ as a single disclosed Species, with traverse. Claims 5 and 39-54 read on the elected Species. Further, if the Examiner desires the election of an ultimate single disclosed Species, Applicants elect, with traverse, the compound disclosed in Reference Example 6 (pages 51-52): N-(1-acetylpiperidin-4-yl)-4-fluorobenzamide. Claims 5 and 39-54 read on the elected ultimate single disclosed Species.

Applicants note that Claims 6-8, 13, 14, 22, 27, 28, 31-34, 36, and 37 depend directly from Claim 4, and as such it is improper to separate these claims. Applicants further note that Claims 39-54 depend directly from Claim 5, and as such it is improper to separate these claims.

Applicants note that the Examiner has not met the burden necessary to demonstrate the propriety of the Restriction Requirement. MPEP §803 states: "Examiners must provide reasons and/or example to support conclusions..." In the present case, the Examiner merely states his conclusions, but has not provided any reasons to support his conclusion. All the Examiner has stated is that Group I-IV and V are related as process of making and process of using the product. The Examiner concludes, "since the product is not allowable, restriction is proper." Clearly, this statement is insufficient to meet the requisite burden to support restriction.

Applicants traverse the Restriction Requirement on the additional grounds that the Office has failed to show that a burden would exist in searching all the claims of the present application.

MPEP §803 states:

If the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to independent and distinct inventions.

Applicants submit that a search and examination of all the claims would not constitute a series burden upon the Examiner. In fact, Applicants wonder how there can be a reasonable basis to support the assertion that there would be a serious burden considering that the Examiner has already presented **TWO** Office Actions on merits. In fact, in one of these Office Actions the Examiner even rejected the claims over art (Oku et al). This clearly and irrefutably indicates that the Examiner was able to understand and search the full scope of the invention without an undue burden. Applicants further note that to fragment the application at this point would amount to an impermissible practice of piecemeal examination. Accordingly, the Restriction Requirement is clearly improper and should be withdrawn.

Applicants respectfully traverse the Election of Species Requirement on the grounds that the Office has not provided any reasons, whatsoever, to support the conclusion of patentable distinctness. Rather, the Office has merely stated the conclusion.

Applicants make no statement regarding the patentable distinctness of the species, but note that for restriction to be proper, there must be a patentable difference between the species as claimed. MPEP §808.01(a). The Office has not provided any reasons or examples to support a conclusion that the species are indeed patentably distinct. Accordingly, Applicants respectfully submit that the restriction is improper, and Applicants' election of species is for examination purposes only.

Finally, with respect to the elected species, Applicants respectfully submit that, should the elected species be found allowable, the Office should expand its search to the non-elected species.

Accordingly, and for the reasons presented above, Applicants submit that the Office has failed to meet the burden necessary in order to sustain the Restriction and Election of Species Requirement. Withdrawal of the Restriction and Election of Species Requirement is respectfully requested.

Additionally, MPEP §821.04

...if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined.

Applicants respectfully submit that should the elected group be found allowable, non-elected process claims that include all the limitations of the allowable product should be rejoined. Applicants acknowledge the Examiner's indication that product claim will be examined along with the elected invention; however, it is the product claim that has been elected and, as such, upon a finding of allowability it is the methods that should be rejoined.

The rejection of Claims 5, 39, 40, and 44-46 under 35 U.S.C. §112, first paragraph (enablement), is traversed.

Applicants wish to draw the Examiner's attention to the **attached copy** of Ex parte Breuer, 1 USPQ2d 1906 (Bd. Pat. App. & Inter. 1986), reviewing an Examiner's decision to reject claims under 35 U.S.C. § 112, first and second paragraph, for the alleged lack of enablement and indefiniteness of the terms "heterocycle" and "substituted" (id. at 1906-1907). In Breuer, the application in question disclosed how to make and use the claimed compounds, including 50 examples of the claimed compounds and a definition of both the terms "heterocycle" and "substituted" (id.). The U.S. Board of Patent Appeals reversed the Examiner's rejection based on the above facts in Ex parte Breuer found sufficient disclosure to enable a person having ordinary skill to practice the claimed invention without undue experimentation (id. at 1907).

Like Ex parte Breuer, the present specification provides a full definition of the term "heterocyclic" and/or derivatives of the term. Further, the present specification provides a full definition of the term "substituent" and/or derivatives of the term. Specifically, at page 14, line 10 to page 15, line 8, the Applicants fully disclose a definition and a range of suitable "heterocyclic groups." Also like Ex parte Breuer, the present specification discloses how to make the claimed compounds (see for example pages 22-32 and 46-61) and further provides 27 examples of compounds within the scope of the present invention (see page 50, line 24 to page 165, line 11).

The Examiner asserts, "In order to practice the claimed invention, one skilled in the art would have to speculate how the derivatives were obtained or prepared." (paper number 12, page 6, lines 8-9). In Ex parte Breuer the Board did not find a patent including 50

examples of the claimed compounds to require undue experimentation. Therefore, like in Ex parte Breuer, the Examiner's rejection should be withdrawn.

Moreover, even in the absence of the clear precedent set by the Board in Ex parte Breuer, Applicants submit that the present application is enabled in yet a completely different manner.

MPEP §2164.04 states:

A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, *unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.*

Not only do the Applicants provide adequate disclosure to fully enable the skilled artisan to make the claimed compounds, Applicants have provided a test to enable the skilled artisan to assess the efficacy of the compounds made thereby (pages 41-45). Applicants also disclose preferred uses of the compounds of the present invention (see, for example, pages 40-42 and the originally filed claims). Moreover, the Examiner has not provided any reason whatsoever to "doubt the objective truth of the statements contained therein which must be relied on for enabling support." Accordingly, this rejection is also unsustainable since the *Examiner has not met the burden* necessary to refute the adequacy of the present disclosure.

Furthermore, Applicants remind the Examiner that MPEP §2164.02 states:

The specification need not contain an example if the invention is otherwise disclosed in such manner that one skilled in the art will be able to practice it without an undue amount of experimentation.

Therefore, the lack of a working example to demonstrate each any every possible method by which "R⁵ R⁶ heterocyclic substituted piperazine compounds were prepared or

obtained”, in and of itself, is not sufficient to support an enablement rejection, nor is the omission of a working example.

In addition, MPEP § 2164.01 states:

The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.

Applicants submit that the skilled artisan would readily appreciate methods by which “R⁵ R⁶ heterocyclic substituted piperazine compounds” may be prepared or obtained, when prepared with the present specification as a guide. In fact, the Examiner’s apparent concern that a painstakingly detailed disclosure of each and every possible method of preparing and obtaining the claimed compounds is of no moment. Applicants wish to draw the Examiner’s attention to MPEP §2164.05(a) states:

The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public...

As stated above, with the knowledge provided in the specification regarding the scope of permissible heterocyclic groups, it would be well known in the art how to make the claimed compounds with the present specification as a guide.

In view of the foregoing, Applicants submit that Claims 5, 39, 40, and 44-46 are fully enabled. Accordingly, Applicants request withdrawal of this ground of rejection.

Applicants submit that the present application is in condition for allowance. Early notification to this effect is respectfully requested.

Respectfully submitted,

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Ex parte Breuer (BdPatApp&Int) 1 USPQ2d 1906

Ex parte Breuer

**U.S. Patent and Trademark Office, Board of Patent Appeals
and Interferences
1 USPQ2d 1906**

Mailed June 30, 1986

Headnotes

PATENTS

1. Patentability/Validity -- Adequacy of disclosure [Enablement] (§ 115.11)

Patent examiner incorrectly refused claims for compound under 35 USC 112, since claims set out and circumscribe invention with reasonable degree of precision and particularity, and since scope of protection sought is supported and justified by specification disclosure, in that term "substituted alkyl" is precise and definite, such that person having ordinary skill is enabled to practice invention, in that recited alkyl groups are not unlimited in size, and in that person of ordinary skill would not view terms "heterocycle" and "substitute alkyl" as being defined in terms of themselves.

Case History and Disposition:

Application for patent of Herman Breuer and Theodor Denzel, Serial No. 444,771, filed November 26, 1982, which is continuation-in-part of Serial No. 336,537, filed January 4, 1982, which is continuation-in-part of Serial No. 368,609, filed April 15 1982. From decision refusing to allow claims 2-5, 9, 15-17, 26 and 27, applicant appeals. Reversed.

Attorneys:

Lawrence S. Levinson, Princeton, N.J., and Donald J. Barrack, for applicant.

Mark L. Berch, primary examiner, for PTO.

Judge:

Before Winters, Goolkasian, and Meros, Examiners-in-Chief.

Opinion Text

Opinion By:

Winters, Examiner-in-Chief.

This is an appeal from the examiner's refusal to allow claims 2 through 5, 9, 15 through 17, 26 and 27.

A copy of claim 26, which is illustrative of the claimed invention, is attached as an appendix to this decision.

No prior art is relied on by the examiner, his sole basis for rejecting the appealed claims being that they are in derogation of the first and second paragraphs of 35 USC 112. It is the examiner's position that the claims run afoul of 35 USC 112 because: (1) in the claim recitation "substituted alkyl", the *degree* of substitution is not given; (2) in "alkylthio", "alkylsulfinyl", and "alkylsulfonyl", each recitation, the alkyl group is unlimited in size; and (3) the terms "heterocycle" and "substituted alkyl" in the claims are defined in terms of themselves.

Respecting these three points, the examiner sets forth his position in full in the Answer, pages 2 through 4 therein.

OPINION

In our view, appellants' claims set out and circumscribe the invention with a reasonable degree of precision and particularity and, moreover, the scope of protection sought is supported and justified by the specification disclosure. *In re Moore*, 439 F.2d 1232, 169 USPQ 236 (CCPA

1971). Accordingly, we shall not sustain these rejections.

[1] Respecting the term "substituted alkyl", that term is precise and definite. As clearly set forth in the claims, "alkyl" refers to groups having 1 to 10 carbon atoms which may be substituted with one or more specified substituent groups. The issue is not whether the examiner can conjure up a substituent group, C₁₀(NH₂)₂₁, which does not exist. A person having ordinary skill in the art would readily appreciate that compounds containing such substituent group do not exist. As stated in a similar context in *In re Angstadt*, 537 F.2d 498, 190 USPQ 214, 219 (CCPA 1976) "nobody will use them [inoperative embodiments] and the claims do not cover them". In view of appellants' exhaustive disclosure describing how to make and use the claimed compounds, including 50 working examples, we are persuaded that a person having ordinary skill is enabled to practice the claimed invention without undue experimentation. The skilled artisan could and would readily ascertain an

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embodiment or embodiments which cannot be made.

Furthermore, we find that the alkyl group in "alkylthio", "alkysulfinyl", and "alkylsulfonyl" is limited in size. In our view, the 1 to 10 carbon atom limitation expressly set forth in the claims applies not only to "alkyl" standing alone but also to the three groups specified above. As stated by appellants, "any group which contains an alkyl group contains an alkyl group of 1 to 10 carbon atoms". See Appellants' Brief, page 9.

The examiner points out that appellants' definition of "substituted alkyl" refers, *inter alia*, to alkyl substituted with "heterocycleoxy" and moreover, the definition of "heterocycle" refers to specific heterocycle groups which may be substituted with "substituted alkyl". According to the examiner, the definition comes full circle and raises the specter that the claims embrace compounds containing a never-ending substituent group. We find that this claim construction, though literal, is not reasonable and is not how a person having ordinary skill would view the claims. The only reasonable construction precludes never-ending substituent groups. For example, when alkyl is substituted with "heterocycleoxy", the skilled artisan would understand that "heterocycle", in this instance, is not substituted with "substituted alkyl". In our view, the examiner's claim construction, though possible, is not reasonable and is incorrect.

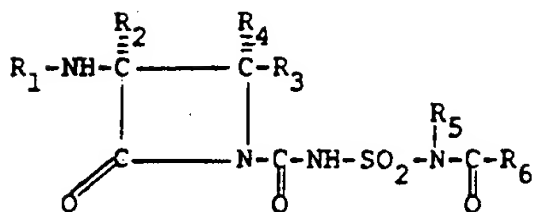
The examiner's decision refusing to allow claims 2 through 5, 9, through 17, 26 and 27 is reversed.

REVERSED.

Appendix

APPENDIX

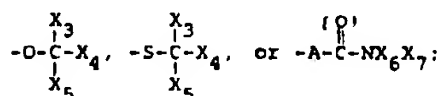
26. A compound having the formula



or a pharmaceutically acceptable salt thereof, wherein R₁ is an acyl group derived from a carboxylic acid;

R₂ is hydrogen or methoxy;

R₃ and R₄ are the same or different and each is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, or a 5, 6 or 7-membered heterocycle or one of R₃ and R₄ is hydrogen and the other is azido, halomethyl, dihalomethyl, trihalomethyl, alkoxycarbonyl, 2-phenylethenyl, 2-phenyl-ethynyl, carboxyl, -CH₂X₁, -S-X₂, -O-X₂,



X₁ is azido, amino, hydroxy, alkanoylamino, alkyl-sulfonyloxy, arylsulfonyloxy, aryl, cyano, -S-X₂ or -O-X₂;

X₂ is alkyl, substituted alkyl, aryl, arylalkyl, alkanoyl, substituted alkanoyl, arylcarbonyl or heteroaryl-carbonyl;

One of X₃ and X₄ is hydrogen and the other is hydrogen or alkyl, or X₃ and X₄ when taken together with the carbon atom to which they are attached form a cycloalkyl group;

X₅ is formyl, alkanoyl, arylcarbonyl, arylalkyl-carbonyl, carboxyl, alkoxycarbonyl, aminocarbonyl, (substituted amino) carbonyl, or cyano;

A is -CH=CH-, -CH₂-CH=CH-, -(CH₂)_m-, -(CH₂)_{m'}-O-, -(CH₂)_{m'}-NH-, -(CH₂)_{m'}-S-CH₂-, or -(CH₂)_{m'}-O-CH₂-;

m is 0, 1, 2 or 3;

m' is 1 or 2;

X₆ and X₇ are the same or different and each is hydrogen or alkyl, or aryl, or X₆ is hydrogen and X₇ is amino, substituted amino, acylamino or alkoxy;

R₅ is hydrogen, alkyl or aryl;

R₆ is hydrogen, alkyl, aryl, a 5, 6 or 7-membered heterocycle, -NR₇R₈, or -(CH₂)_n-X wherein n is 1, 2, 3 or 4 and X is halogen, aryl, alkoxy, aryloxy or -NR₉R₁₀;

R₇ and R₈ are the same or different and each is hydrogen, alkyl or R₇ is hydrogen and R₈ is a 5, 6 or 7-membered heterocycle or -(CH₂)_n-Y wherein n is 1, 2, 3 or 4 and Y is alkoxy, amino, alkylthio or halogen; and

R₉ and R₁₀ are the same or different and each is hydrogen or alkyl, or R₉ is hydrogen and R₁₀ is

a 5, 6 or 7-membered heterocycle;
wherein the terms "alkyl" and "alkoxy" refer to groups having 1 to 10 carbon atoms;
the term "cycloalkyl" refers to groups having 3, 4, 5, 6 or 7 carbon atoms;
the terms "alkanoyl", "alkenyl", and "alkynyl" refer to groups having 2 to 10 carbon atoms;
the term "aryl" refers to a phenyl or phenyl substituted with 1, 2 or 3 amino, halogen, hydroxyl, trifluoromethyl, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms or carboxyl groups;
the term "substituted alkyl" refers to alkyl groups substituted with one, or more, azido, amino, halogen, hydroxy, carboxy, cyano, alkoxycarbonyl, aminocarbonyl, alkanoy

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loxy, alkoxy, aryloxy, a 5, 6 or 7-membered heterocycleoxy, mercapto, alkylthio, arylthio, alkyl-sulfinyl, or alkylsulfonyl groups;
the term "substituted alkanoyl" refers to groups having the formula (substituted alkyl)



the term "substituted amino" refers to a group having the formula $-\text{NY}_1\text{Y}_2$ wherein Y_1 is hydrogen, alkyl, aryl, or arylalkyl, and Y_2 is alkyl, aryl, arylalkyl, hydroxy, cyano, alkoxy, phenylalkoxy, or amino;

the term "heteroaryl" refers to pyridinyl, furanyl, pyrrolyl, thienyl, 1,2,3-triazolyl, 1,2,4-triazolyl, imidazolyl, thiazolyl, thiadiazolyl, pyrimidinyl, oxazolyl, triazinyl, tetrazolyl or one of the above groups substituted with one, or more, oxo, halogen, hydroxy, nitro, amino, cyano, trifluoromethyl, alkyl or 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkyl-sulfonyl, aryl, 2-furylmethyleneimino, phenylmethylene-imino or substituted alkyl, wherein the alkyl group has 1 to 4 carbon atoms, groups; and

the term "a 5, 6, or 7-membered heterocycle" refers to pyridinyl, furanyl, pyrrolyl, thienyl, 1,2,3-triazolyl, 1,2,4-triazolyl, imidazolyl, thiazolyl, thiadiazolyl, pyrimidinyl, oxazolyl, triazinyl, tetrazolyl, piperidinyl, piperazinyl, imidazolidinyl, oxazolidinyl, pyrrolidinyl, tetrahydropyrimidinyl, dihydrothiazolyl, or one of the above groups substituted with one or more oxo, halogen, hydroxy, nitro, amino, cyano, trifluoromethyl, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkyl-sulfonyl, aryl, 2-furylmethyleneimino, phenylmethyleneimino, or substituted alkyl, wherein the alkyl group has 1 to 4 carbon atoms, groups.

- End of Case -